



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,081	01/05/2005	Yasushi Nakajima	040302-0426	9194
22428 7590 06/08/2009 FOLEY AND LARDNER LLP SUITE 500 3000 K STREET NW WASHINGTON, DC 20007				
EXAMINER				
HODGE, ROBERT W				
ART UNIT		PAPER NUMBER		
1795				
MAIL DATE		DELIVERY MODE		
06/08/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/520,081

Applicant(s)

NAKAJIMA ET AL.

Examiner

ROBERT HODGE

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 4/13/09 have been fully considered but they are not persuasive. Applicants state that neither Bossel nor Edlund teach the added recitation to claim 1 of an inner annular bulk metal member "disposed to be radially adjacent to the porous metal plate. This is not found persuasive for at least the reason that in figure 3a (as applicants have discussed) the metal spacers 33 are disposed radially adjacent to the intermediate layer 32. As discussed in the first paragraph of the Summary Of The Invention of Edlund, the intermediate layer is porous. Therefore Edlund teaches a non-porous spacer immediately and radially adjacent to a porous intermediate layer. With regards to the holder member, applicants' arguments are not commensurate with the scope of the claims, there is no recitation in claim 1 reciting that the holder member must be a separate element from any of the other elements as recited in the claims. Also due to the breadth of the recitation of "holder member" as long as the contact region of 22 is capable of holding, which it is, it reads on the claims as recited. Applicants further state that the contact region 22 of Bossel is not located in a central region. Said argument is also not commensurate with the scope of claim 1. Even if it were it is quite clear in figure 1A that the contact region 22 is located in the opening 6 which is "centrally" located with respect to the outer periphery of the cell plate.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5 and 7-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. No support can be found in the instant specification for an inner annular bulk metal member "disposed to be radially adjacent to the porous metal plate" as recited in lines 4 and 5 of claim 1.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-5 and 7-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,344,290 hereinafter Bossel in view of U.S. Patent No. 5,645,626 hereinafter Edlund.

Regarding claim 1, as seen in figures 1 and 2, Bossel teaches a cell plate 1, provided with a supporting body 2 which is a porous metal plate, a cell including a solid electrolyte layer 17, a cathode layer 18 and an anode layer 19, an electro conductive gas separator 20 and a holding member 22 (see also column 4, line 33 – column 8, line 59).

Bossel does not teach an inner annular bulk metal member which is a gas impermeable member.

As seen in figure 3a, Edlund teaches an electrochemical cell comprising a cell plate having a supporting body including a porous metal plate 32 and an inner annular bulk metal member 33 which is a gas impermeable member disposed to be radially adjacent to the porous metal plate (column 5, lines 23-33, column 6, lines 65-67, column 7, lines 36-61 and column 11, lines 36-65).

At the time of the invention it would have been obvious to one having ordinary skill in the art to include an inner annular bulk member disposed radially adjacent to the inner opening of Bossel as taught by Edlund in order to reinforce the opening of the porous metal plate of Bossel and reduce the risk of damage to the porous plate during assembly. If a technique has been used to improve one device (adding an inner annular bulk metal member radially adjacent to the inner opening in a porous metal member) and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way (a porous substrate), using the technique is obvious unless its actual application is beyond his or her skill. See MPEP 2141 (III) Rationale C, KSR v. Teleflex (2007 Supreme Court).

Regarding claim 2, as seen in figure 2, Bossel teaches that the holding member 22 holds a part of the gas separator 20.

Regarding claim 3, Bossel teaches that the cells are stacked (column 6, line 67) and are electrically connected (column 6, lines 33-34).

Regarding claims 4 and 5, Bossel teaches the stack is held together by compression produced by a tie rod (column 12, lines 15-16).

Regarding claim 7, as seen in figure 1, Bossel teaches an insulating member 23 provided at an inner annular position having a same thermal expansion coefficient of the solid electrolyte (i.e. they are constructed of substantially similar materials) (column 9, letter "c" and column 14, lines 19-21).

Regarding claim 8, as seen in figure 2, Bossel teaches that the holder member 22 is provided with a gas supplying passage.

Regarding claims 9-12, as seen in figures 1 and 2, Bossel teaches open and closed gas passages at the outer periphery as well as providing two separate reactants to different sides of the holding member 22.

Regarding claim 13, as seen in figure 2, Bossel teaches a plurality of holding members 22 that are electrically conductive and separated by an electrically insulative member 23 and the cells are electrically connected (column 6, lines 33-34).

Regarding claims 14 and 15 in an alternative interpretation as seen in figures 1 and 2, Bossel teaches a holding member 23 (i.e. annular seal) which is electrically insulative, with gas separators 1 and 20 on both sides of the cell connected to each other and that all of the cells are electrically connected to form a stack (column 6, lines 33-34).

Regarding claim 16, Bossel teaches that the separators and the holding member are made of the same material (column 6, lines 52 et seq.). The examiner notes that claim 16 is a product-by-process claim. "Product-by-process claims are not limited to

the manipulations of the recited steps, only the structure implied by the steps". See MPEP § 2113. Therefore because all of the structure recited in claim 16 is present in the Bossel reference, claim 16 is included in the above 103(a) rejection.

Regarding claim 17, as seen in figures 1 and 2, Bossel teaches the mutual contacting areas of the holding member and separators are identical on both sides and therefore form mirror surfaces.

Regarding claim 18, Bossel teaches the layers are thin films (column 8, line 60 – column 9, line 46).

Regarding claim 19, Bossel teaches the stack is held within a casing (column 8, lines 56-57).

Regarding claim 20, as seen in figure 1 Bossel teaches the holder member 22 is arranged in a hole provided at a central portion 3 of the cell plate.

Regarding claim 21, Bossel teaches the shapes of the cell plate and holder member are circular or polygonal (column 4, lines 33-55).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Hodge/
Examiner, Art Unit 1795